

DIRECT DRIVE STEREO TURNTABLE
PL-510A

<ART-182-0>

Service Manual



 **PIONEER**

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Service information for PL-510A/KCT, KUT is described through pages 4 to 32

Additional Service Manual (HGT model)

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1. SPECIFICATIONS

MOTOR AND TURNTABLE

| | |
|--------------------|--|
| Motor: | DC servo motor |
| Turntable drive: | Direct drive |
| Speed: | Two speeds: 33-1/3 rpm, 45 rpm |
| Wow and flutter: | 0.03% (WRMS) or less |
| S/N: | 68 dB (DIN-B) or more (with Pioneer cartridge model PC-135) |
| Turntable platter: | 321mm diam. aluminum alloy |
| Moment of inertia: | 240kg-cm ² (including rubber mat) |

TONARM

| | |
|--------------------------|---|
| Tonearm type: | Static-balance, S-shaped, pipe arm |
| Effective arm length: | 221mm |
| Tracking error: | +3° ~ -1° |
| Overhang: | 15.5mm |
| Usable cartridge weight: | 4g (min.) ~ 10g (max.) (For cartridge weighs over 8.5g, attach the sub weight) |

SUBFUNCTIONS

| | |
|----------------------------|--|
| Anti-skating force control | |
| Plug-in type headshell | |
| Oil-damped arm elevator | |
| Hinges (Free-adjustable) | |
| Lateral balance weight | |
| Fine speed adjusters | (33-1/3 rpm, 45 rpm: using the stroboscope for turntable speed adjustment). |

ACCESSORIES

| | |
|----------------------------|---|
| Headshell | 1 |
| Overhang gauge | 1 |
| EP adaptor | 1 |
| Screwdriver | 1 |
| Sub weight | 1 |
| Cartridge mounting screws | 6 |
| Cartridge mounting nuts | 2 |
| Cartridge mounting washers | 2 |
| Operating instructions | 1 |

MISCELLANEOUS

| | |
|---------------------|--|
| Power requirements: | AC, 120V, 60Hz |
| Power consumption: | 5W |
| Dimensions: | 440(W) x 362(D) x 159(H) mm 17-5/16(W) x 14-1/4(D) x 6-1/4(H) in. |
| Weight: | 8kg, 17lb 10oz |

NOTE:

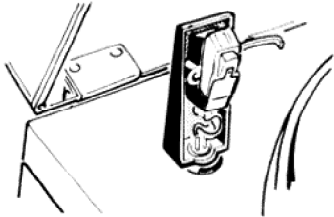
Specifications and design subject to possible modification without notice, due to improvements.

2. PANEL FACILITIES

Headshell Stand

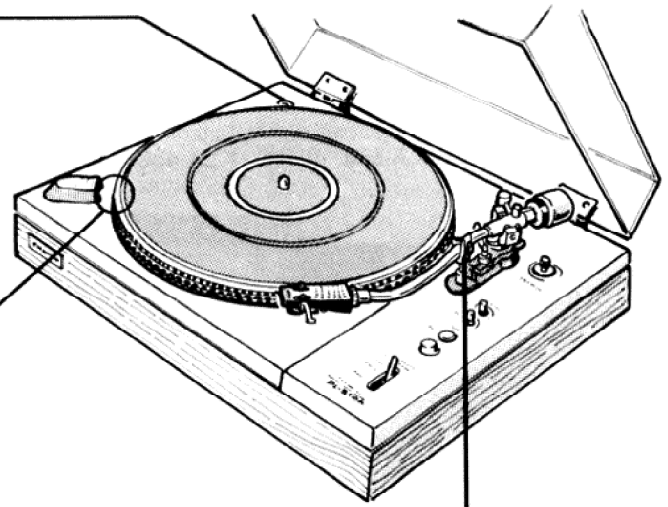
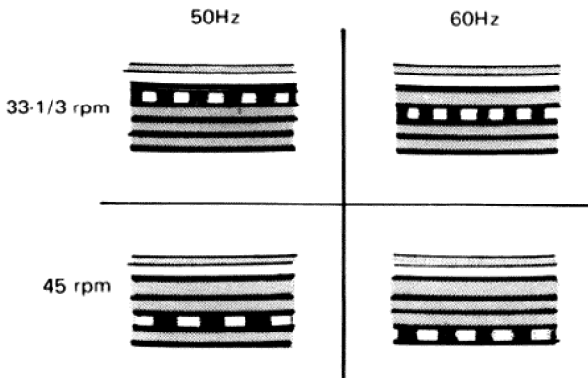
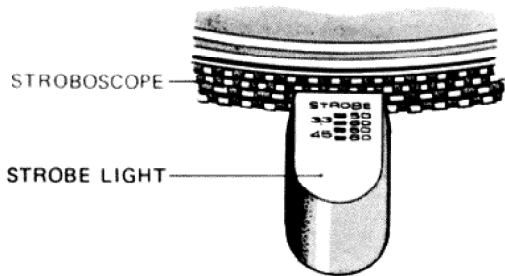
A spare headshell can be stored in this stand. Align the headshell pins with the stand grooves and insert.

Observe that the headshell length is not greater than the height of the dust cover. This stand can also be used for storing the EP adaptor.



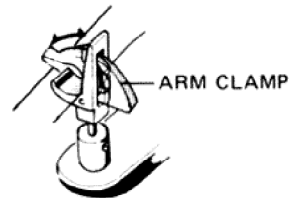
Stroboscope

Fine adjustments of rotation speed can be performed with the aid of the stroboscope. Adjust the SPEED ADJ. knobs while observing the pattern indicated below. If the rotation is fast, the pattern will appear to move toward the left, while movement toward the right indicates slow speed. Correct speed is obtained when the pattern appears to be stationary.



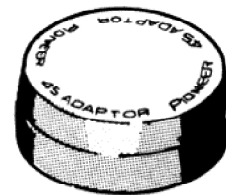
Arm Rest

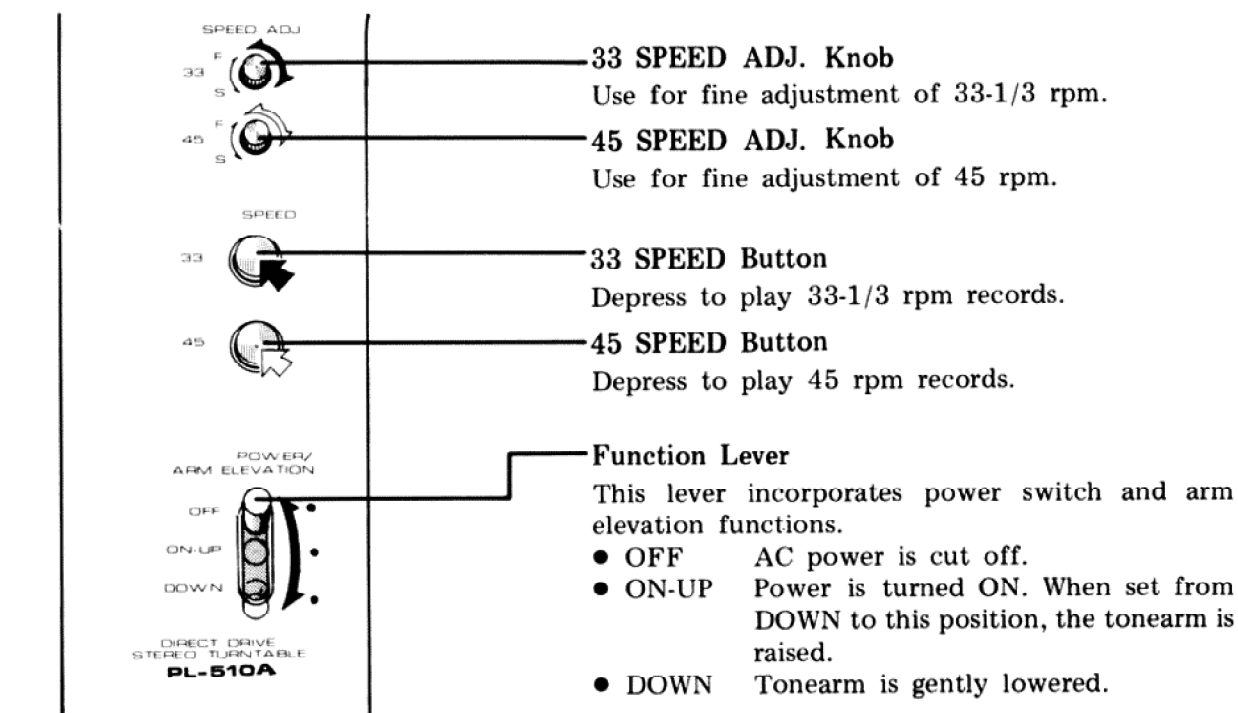
Supports the tonearm when not playing a record. At the end of a playing session, engage the clamp as illustrated below.



EP Adaptor

Place on center shaft when playing 45 rpm EP records.





OPERATION

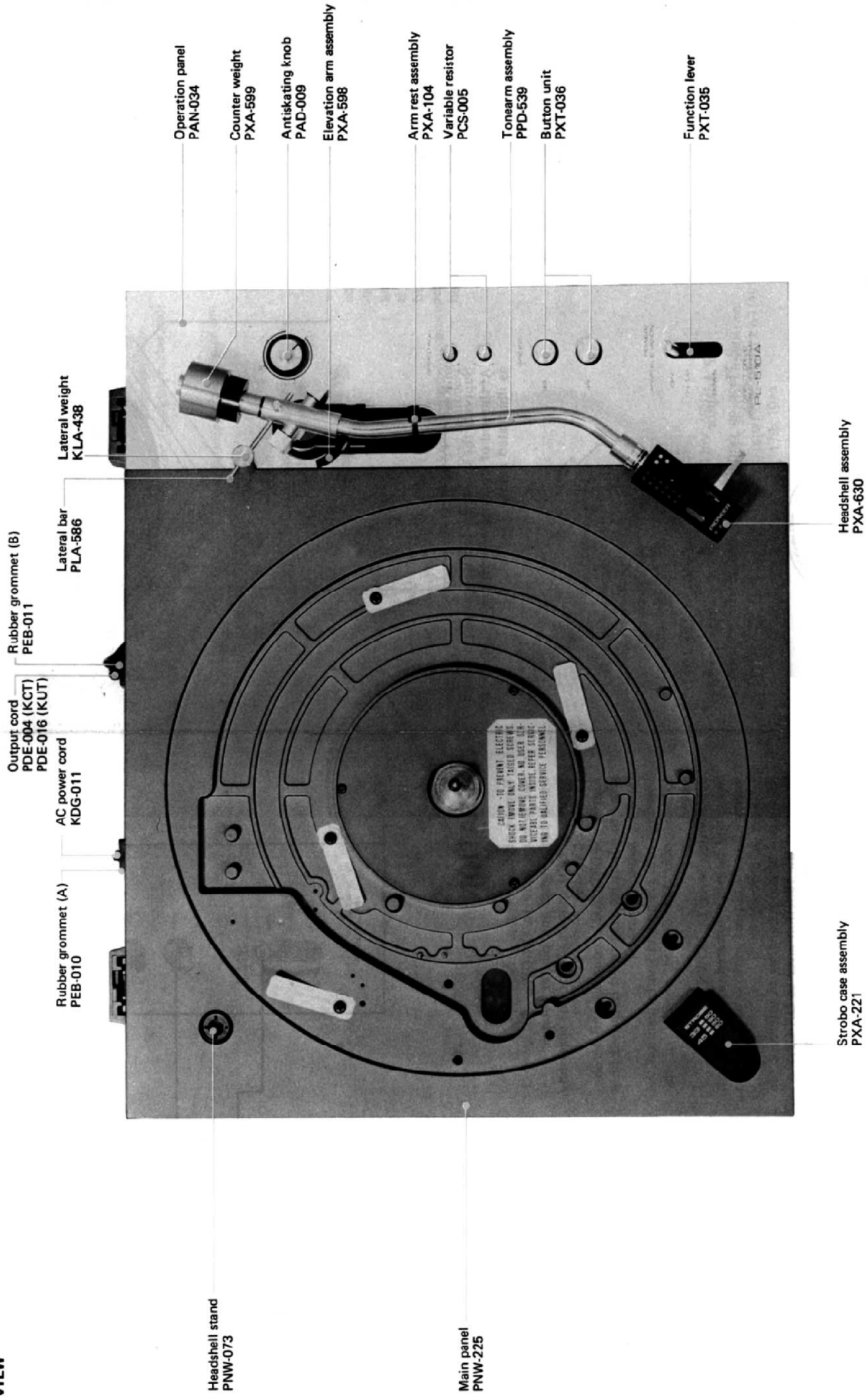
1. Remove stylus cover.
2. Set function lever to ON-UP.
Strobe lamp lights and platter rotates.
3. Depress SPEED button (33 or 45) according to type of record.
4. Employ SPEED ADJ. controls and stroboscope to adjust rotating speed (required only once per listening session).
5. Disengage arm clamp and gently position the tonearm over the desired portion of the record.
6. Set function lever to DOWN.
Stylus will be gently lowered onto the record.
7. Adjust volume and tone controls of the stereo amplifier as desired.
8. At the end of the record, or to interrupt the record, set the function lever to ON-UP.
The stylus will be raised from the record.
9. Return tonearm to arm rest and engage clamp.
10. Set function lever to OFF. Power will be cut off and strobe lamp extinguished.
11. It is advisable to replace the stylus cover for protection whenever the turntable is not in use.

OPERATING PRECAUTIONS

- Keep stylus and records clean. Use a stylus brush to clean the stylus and a good quality record cleaner to clean the records each time before and after playing.
- Avoid exerting unnecessary force on the tonearm. When changing headshells, set the tonearm in the arm rest and engage the clamp.
- Take care not to impart vibration to the turntable while a record is playing. Record and stylus can be damaged.
- Avoid placing more than 2 records on the turntable platter while playing records.

3. PARTS LOCATIONS

3.1 TOP VIEW



3.2 UNDER VIEW



Power supply assembly B
PWR-006

Power transformer
PTT-017

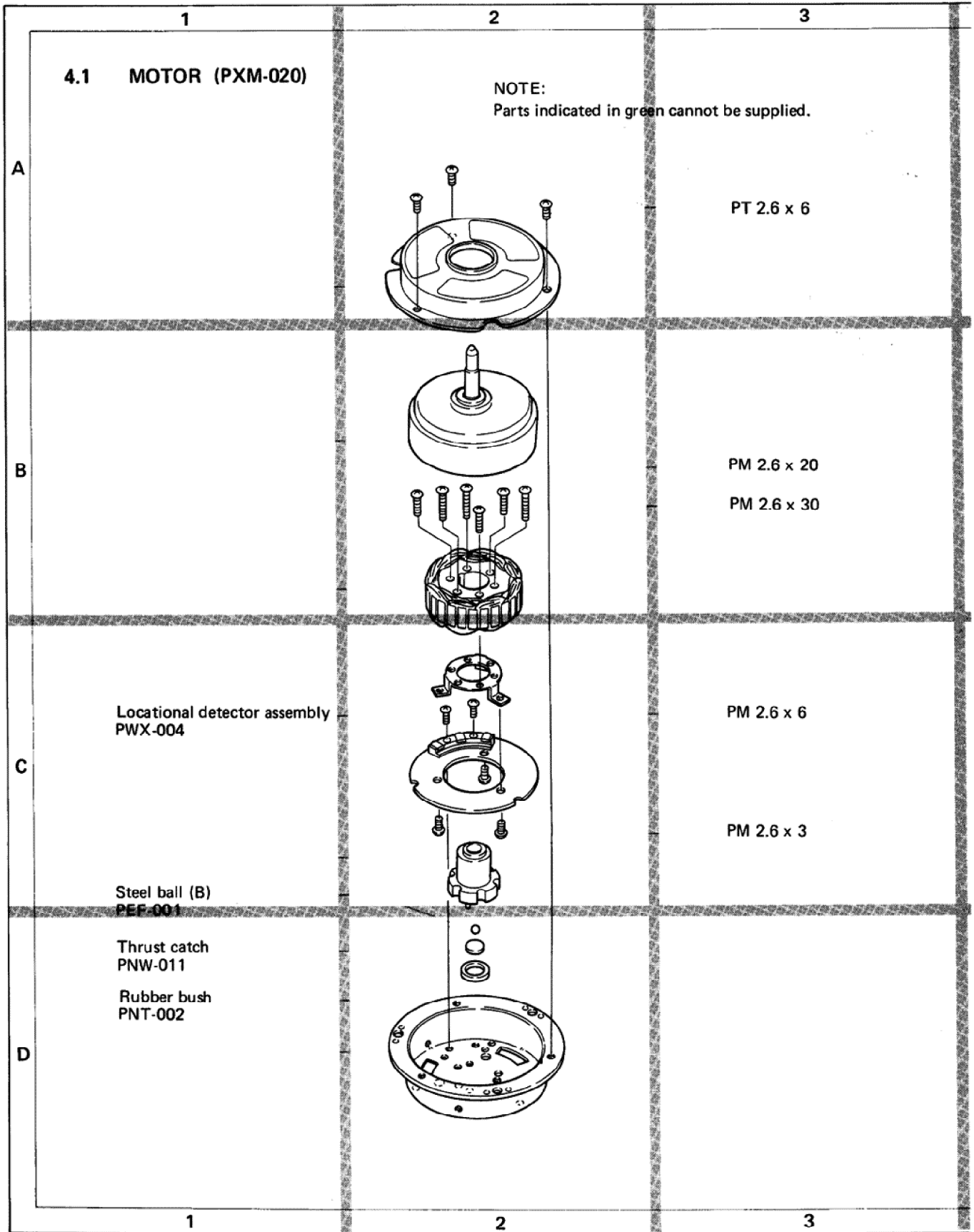
Motor (including
drive current
control assembly)
PXM-020

Power supply assembly A
PWR-816

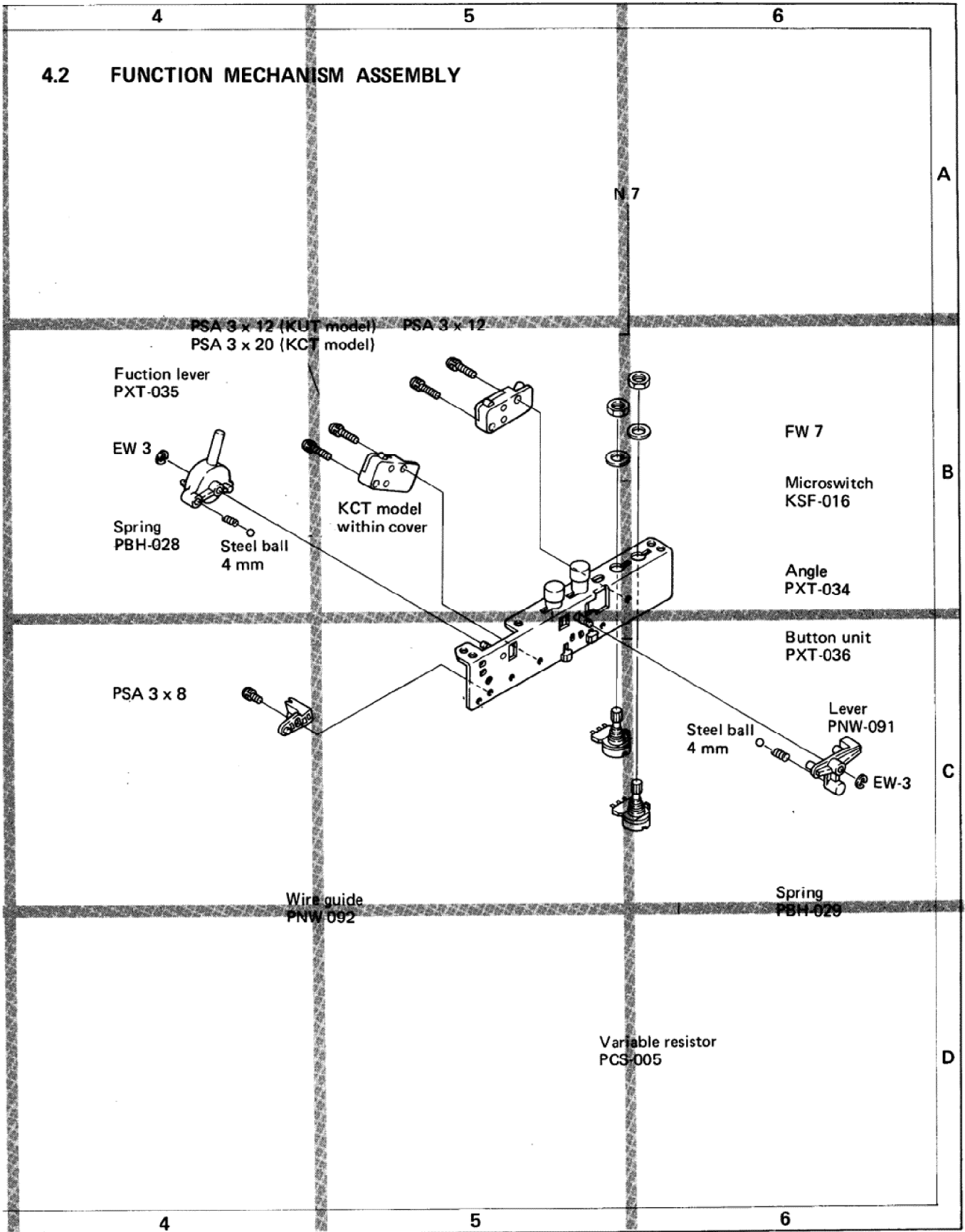
Driving current control assembly
PWG-007

Wire
PXT-523

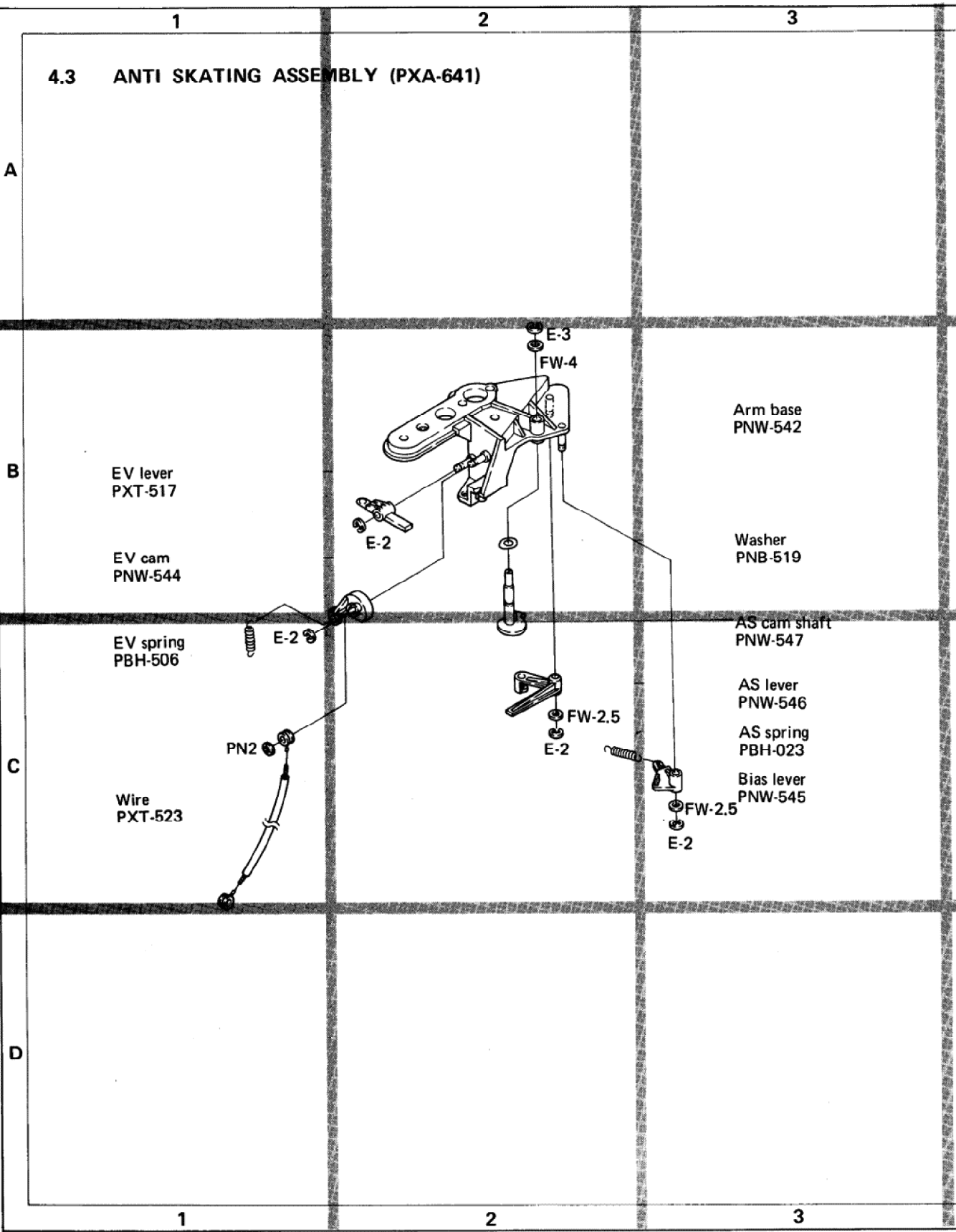
Microswitch
KSF-016



4.2 FUNCTION MECHANISM ASSEMBLY



4.3 ANTI SKATING ASSEMBLY (PXA-641)



4.4 TONEARM ASSEMBLY (PPD-539)

Elevation arm assembly
PXA-598

Rubber
PNT-507

Elevation arm
PNW-541

Shaft
PLA-620

SF 4 x 5

SF 2.6 x 2

Screw
PLA-567

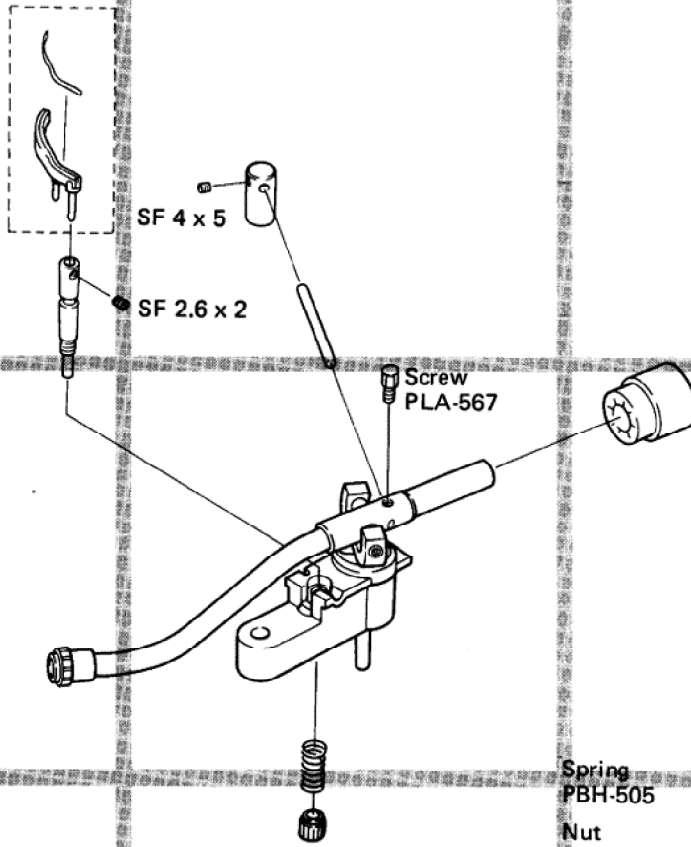
Lateral weight
KLA-438

Lateral bar
PLA-586

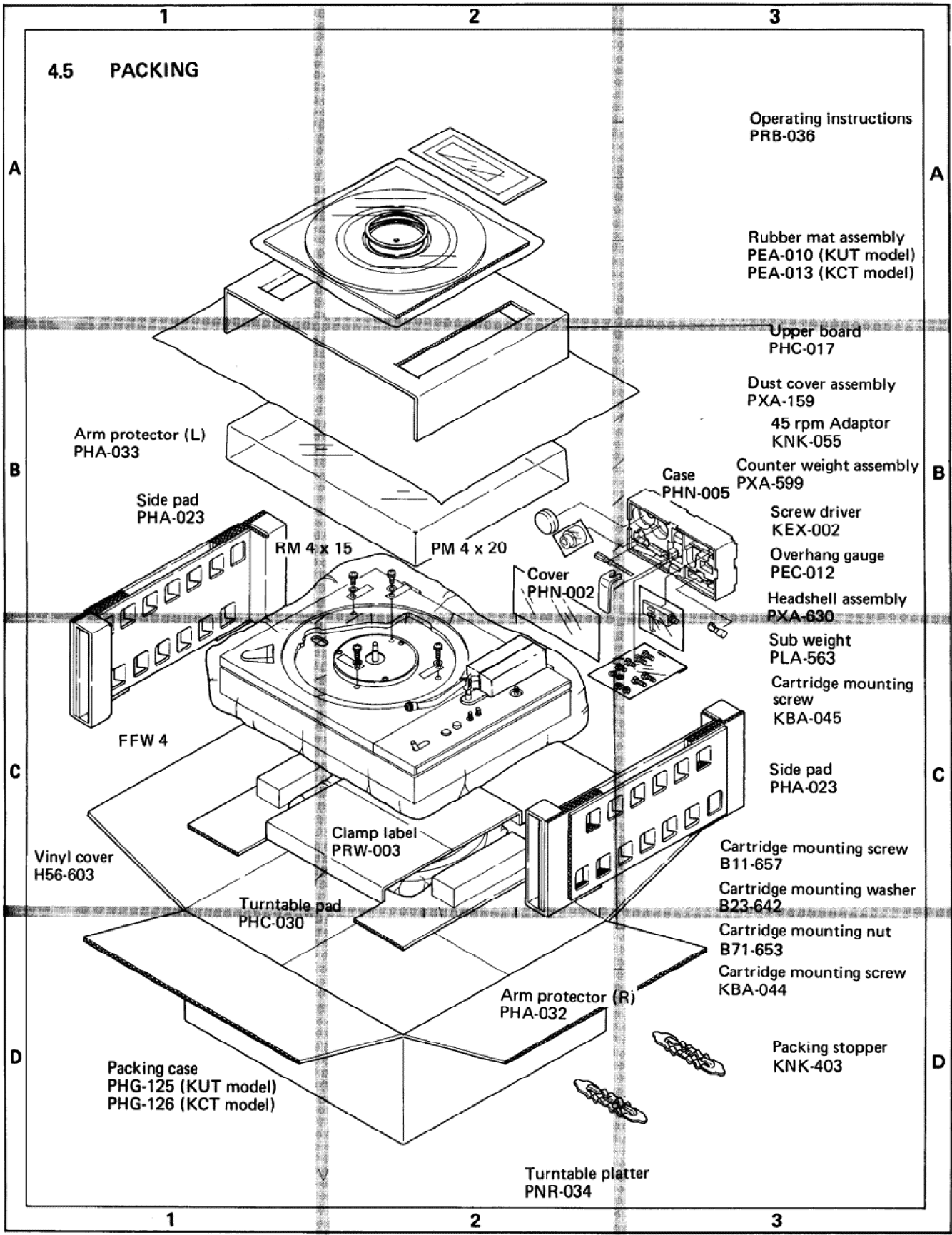
Counter weight
PXA-599

Spring
PBH-505

Nut
PBN-501



4.5 PACKING



Operating instructions
PRB-036

Rubber mat assembly
PEA-010 (KUT model)
PEA-013 (KCT model)

Upper board
PHC-017

Dust cover assembly
PXA-159

45 rpm Adaptor
KNK-055

Counter weight assembly
PXA-599

Case
PHN-005

Screw driver
KEX-002

Overhang gauge
PEC-012

Headshell assembly
PXA-630

Sub weight
PLA-563

Cartridge mounting
screw
KBA-045

Side pad
PHA-023

Cartridge mounting screw
B11-657

Cartridge mounting washer
B23-642

Cartridge mounting nut
B71-653

Cartridge mounting screw
KBA-044

Packing stopper
KNK-403

Arm protector (L)
PHA-033

Side pad
PHA-023

RM 4 x 15

PM 4 x 20

Cover
PHN-002

FFW 4

Clamp label
PRW-003

Vinyl cover
H56-603

Turntable pad
PHC-030















Arm protector (R)
PHA-032

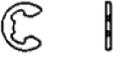
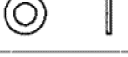
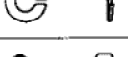
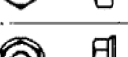
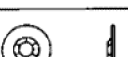

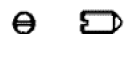
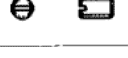

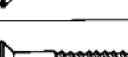



Packing case
PHG-125 (KUT model)
PHG-126 (KCT model)

Turntable platter
PNR-034

5. NOMENCLATURE OF SCREWS, WASHERS AND NUTS

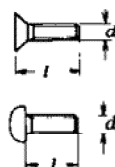
The following symbols stand for screws, washers and nuts as shown in exploded view.

| Symbol | Description | Shape |
|--------|--|---|
| RT | Brazier head tapping screw |  |
| PT | Pan head tapping screw |  |
| PTT | Special screw (A) |  |
| PTBA | Special screw (B) |  |
| POTBA | Special screw (C) |  |
| OCT | Oval countersunk head tapping screw |  |
| PM | Pan head machine screw |  |
| CM | Countersunk head machine screw |  |
| OCM | Oval countersunk head machine screw |  |
| TM | Truss head machine screw |  |
| BM | Binding head machine screw |  |
| PSA | Pan head screw with spring lock washer |  |
| PSB | Pan head screw with spring lock washer and flat washer |  |
| PSF | Pan head screw with flat washer |  |

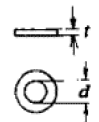
| Symbol | Description | Shape |
|--------|-----------------------------------|---|
| EW | E type washer |  |
| FW | Flat washer |  |
| SW | Spring lock washer |  |
| N | Nut |  |
| WN | Washer faced nut |  |
| PN | Push nut |  |
| FFW | Fiber flat washer |  |
| SC | Slotted set screw (Cone point) |  |
| SF | Slotted set screw (Flat point) |  |
| HS | Hexagon socket headless set screw |  |
| OCW | Oval countersunk head wood screw |  |
| CW | Countersunk head wood screw |  |
| RW | Round head wood screw |  |

EXAMPLE

PM · 3x8
 length in mm (*l*)
 diameter in mm (*d*)
 Symbol

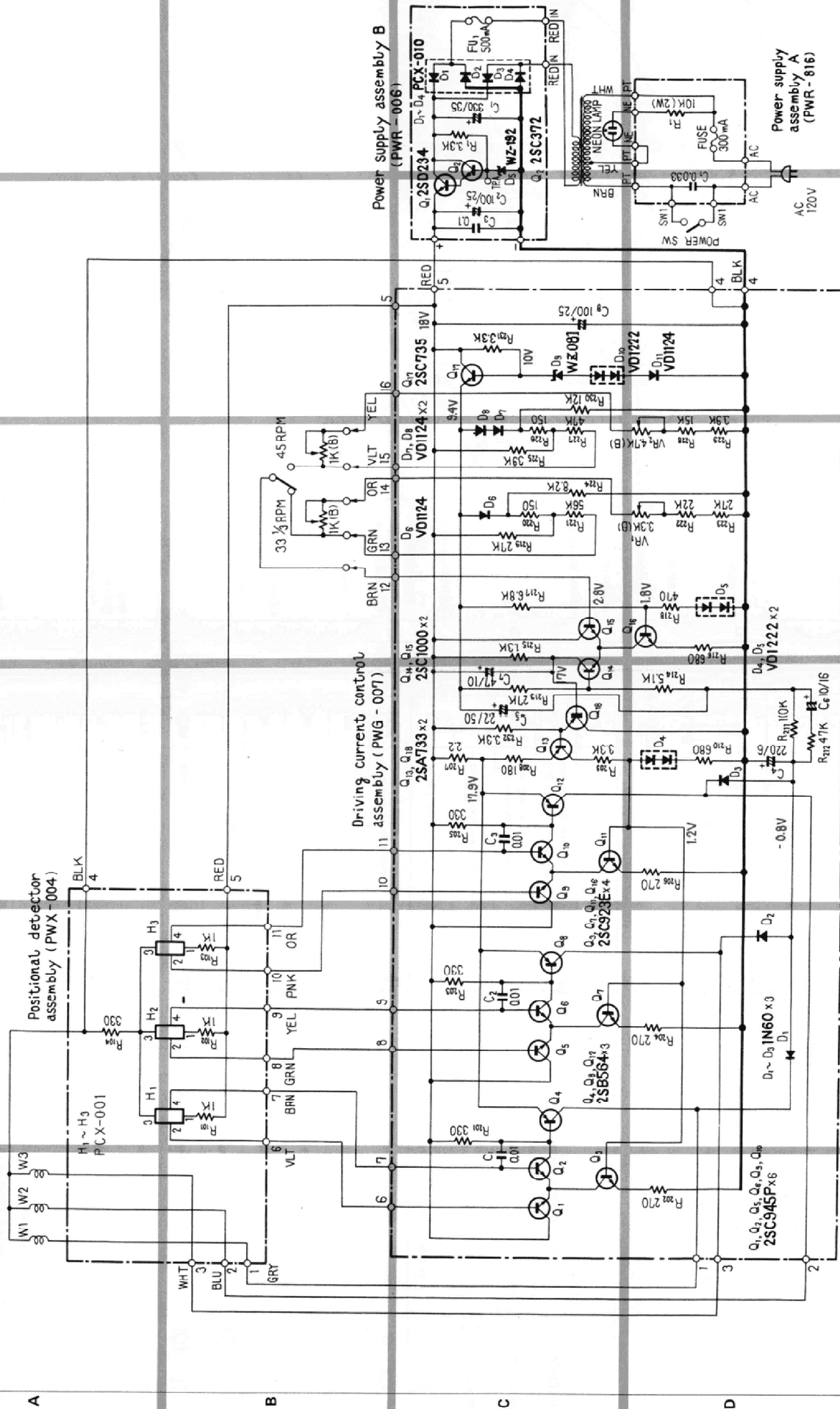


FW · 9φ x 1^t
 thickness in mm (*t*)
 diameter in mm (*d*)
 Symbol

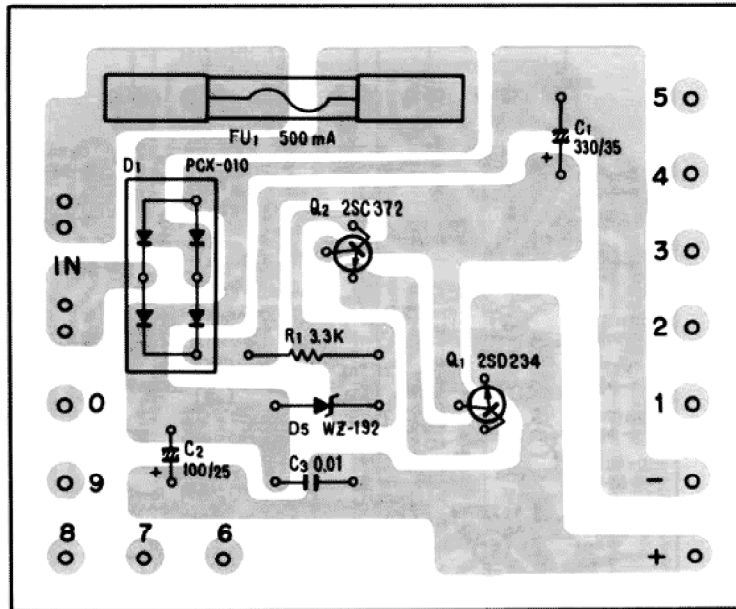


6. SCHEMATIC DIAGRAM, P.C. BOARD PATTERNS AND PARTS LIST

6.1 SCHEMATIC DIAGRAM



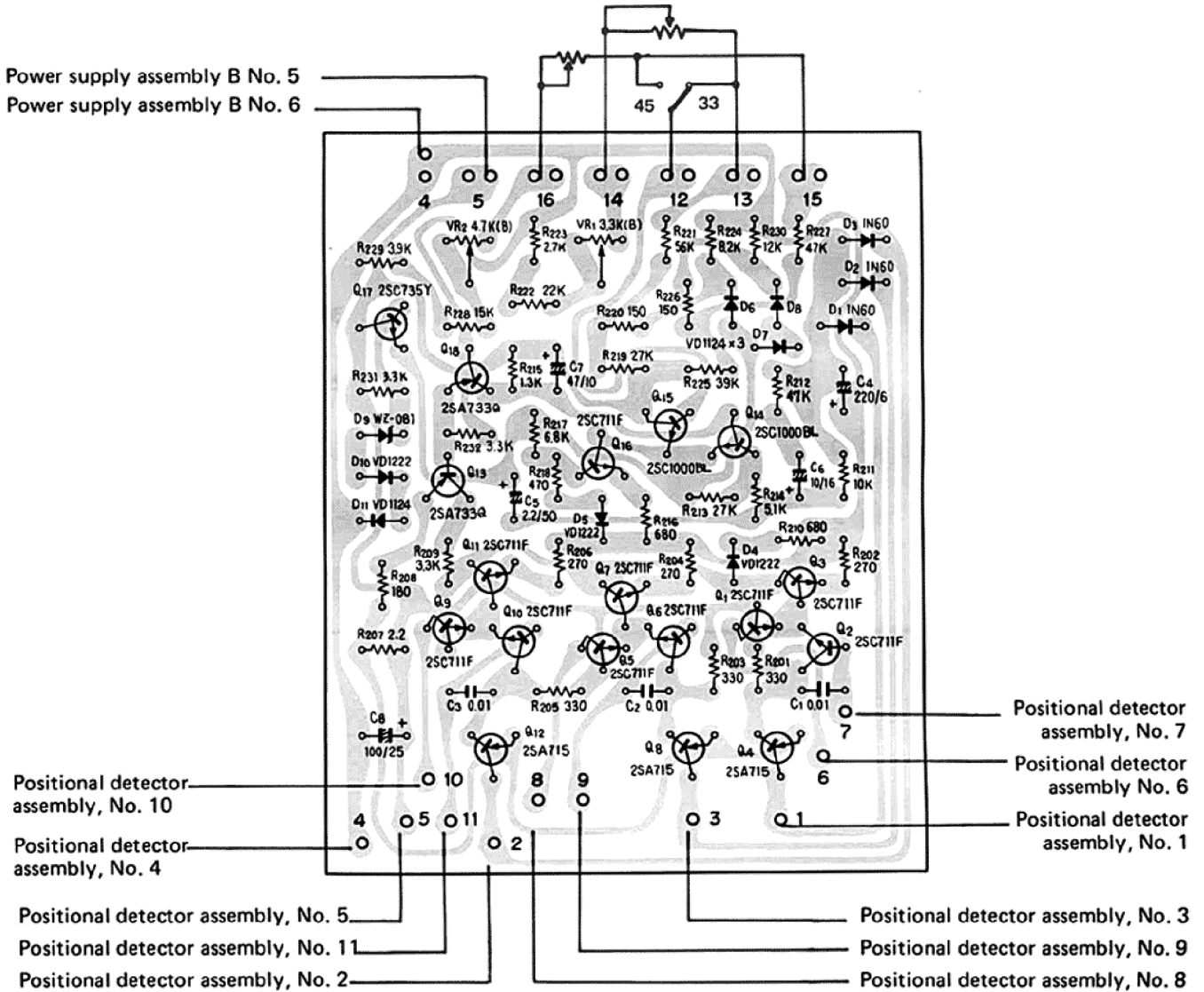
6.2 POWER SUPPLY ASSEMBLY B (PWR-006)



Parts List of Power Supply Assembly B (PWR-006)

| Symbol | Description | Part No. |
|--------|----------------------|---------------|
| C1 | Electrolytic 330 35V | CEA 331P 35 |
| C2 | Electrolytic 100 25V | CEA 101P 25 |
| C3 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| R1 | Carbon film 3.3k | RD½PS 332J |
| Q1 | Transistor | 2SD234 |
| Q2 | Transistor | 2SC372 |
| D1 | Diode | PCX-010 |
| D2 | Zener diode | WZ-192 |
| FU | Fuse 500mA | PEK-004 |
| | Fuse clip | K91-006 |

6.3 DRIVING CURRENT CONTROL ASSEMBLY (PWG-007)



Parts List of Driving Current Control Assembly (PWG-007)

CAPACITORS

| Symbol | Description | Part No. |
|--------|----------------------|---------------|
| C1 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C2 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C3 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| C4 | Electrolytic 220 6V | CEA 221P 6 |
| C5 | Electrolytic 2.2 50V | CEA 2R2P 50 |
| C6 | Electrolytic 10 16V | CEA 100P 16 |
| C7 | Electrolytic 47 10V | CEA 470P 10 |
| C8 | Electrolytic 100 25V | CEA 101P 25 |

RESISTORS

| Symbol | Description | Part No. |
|--------|-------------------|------------|
| R201 | Carbon film 330 | RD%VS 331J |
| R202 | Carbon film 270 | RD%VS 271J |
| R203 | Carbon film 330 | RD%VS 331J |
| R204 | Carbon film 270 | RD%VS 271J |
| R205 | Carbon film 330 | RD%VS 331J |
| R206 | Carbon film 270 | RD%VS 271J |
| R207 | Carbon film 2.2 | RD%VS 2R2J |
| R208 | Carbon film 180 | RD%VS 181J |
| R209 | Carbon film 3.3k | RD%VS 332J |
| R210 | Carbon film 680 | RD%VS 681J |
| R211 | Carbon film 10k | RD%VS 103J |
| R212 | Carbon film 47k | RD%VS 473J |
| R213 | Carbon film 27k | RD%VS 273J |
| R214 | Carbon film 5.1k | RD%VS 512J |
| R215 | Carbon film 1.3k | RD%VS 132J |
| R216 | Carbon film 680 | RD%VS 681J |
| R217 | Carbon film 6.8k | RD%VS 682J |
| R218 | Carbon film 470 | RD%VS 471J |
| R219 | Carbon film 27k | RD%VS 273J |
| R220 | Carbon film 150 | RD%VS 151J |
| R221 | Carbon film 56k | RD%VS 563J |
| R222 | Carbon film 22k | RD%VS 223J |
| R223 | Carbon film 2.7k | RD%VS 272J |
| R224 | Carbon film 8.2k | RD%VS 822J |
| R225 | Carbon film 39k | RD%VS 393J |
| R226 | Carbon film 150 | RD%VS 151J |
| R227 | Carbon film 47k | RD%VS 473J |
| R228 | Carbon film 15k | RD%VS 153J |
| R229 | Carbon film 3.9k | RD%VS 392J |
| R230 | Carbon film 12k | RD%VS 123J |
| R231 | Carbon film 3.3k | RD%VS 332J |
| R232 | Carbon film 3.3k | RD%VS 332J |
| VR1 | Semi-fixed 3.3k-B | PCP-001 |
| VR2 | Semi-fixed 4.7k-B | PCP-002 |

| Symbol | Description | Part No. |
|--------|-------------|--------------------------------------|
| Q6 | Transistor | 2SC711-F (2SC458-C, 2SC945-P1) |
| Q7 | Transistor | 2SC711-F (2SC923-E) |
| Q8 | Transistor | 2SA715-C (2SA509-Y, 2SB564-L) |
| Q9 | Transistor | 2SC711-F (2SC458-C, 2SC945-P1) |
| Q10 | Transistor | 2SC711-F (2SC458-C, 2SC945-P1) |
| Q11 | Transistor | 2SC711-F (2SC923-E) |
| Q12 | Transistor | 2SA715-C (2SA509-Y, 2SB564-L) |
| Q13 | Transistor | 2SA733-Q |
| Q14 | Transistor | 2SC1000-BL |
| Q15 | Transistor | 2SC1000-BL |
| Q16 | Transistor | 2SC711-F (2SC923-E) |
| Q17 | Transistor | 2SC735-Y |
| Q18 | Transistor | 2SA733-Q |
| D1 | Diode | IN60 |
| D2 | Diode | IN60 |
| D3 | Diode | IN60 |
| D4 | Varistor | VD1222 |
| D5 | Varistor | VD1222 |
| D6 | Varistor | VD1124 |
| D7 | Varistor | VD1124 |
| D8 | Varistor | VD1124 |
| D9 | Zener diode | WZ081 |
| D10 | Varistor | VD1222 |
| D11 | Varistor | VD1124 |

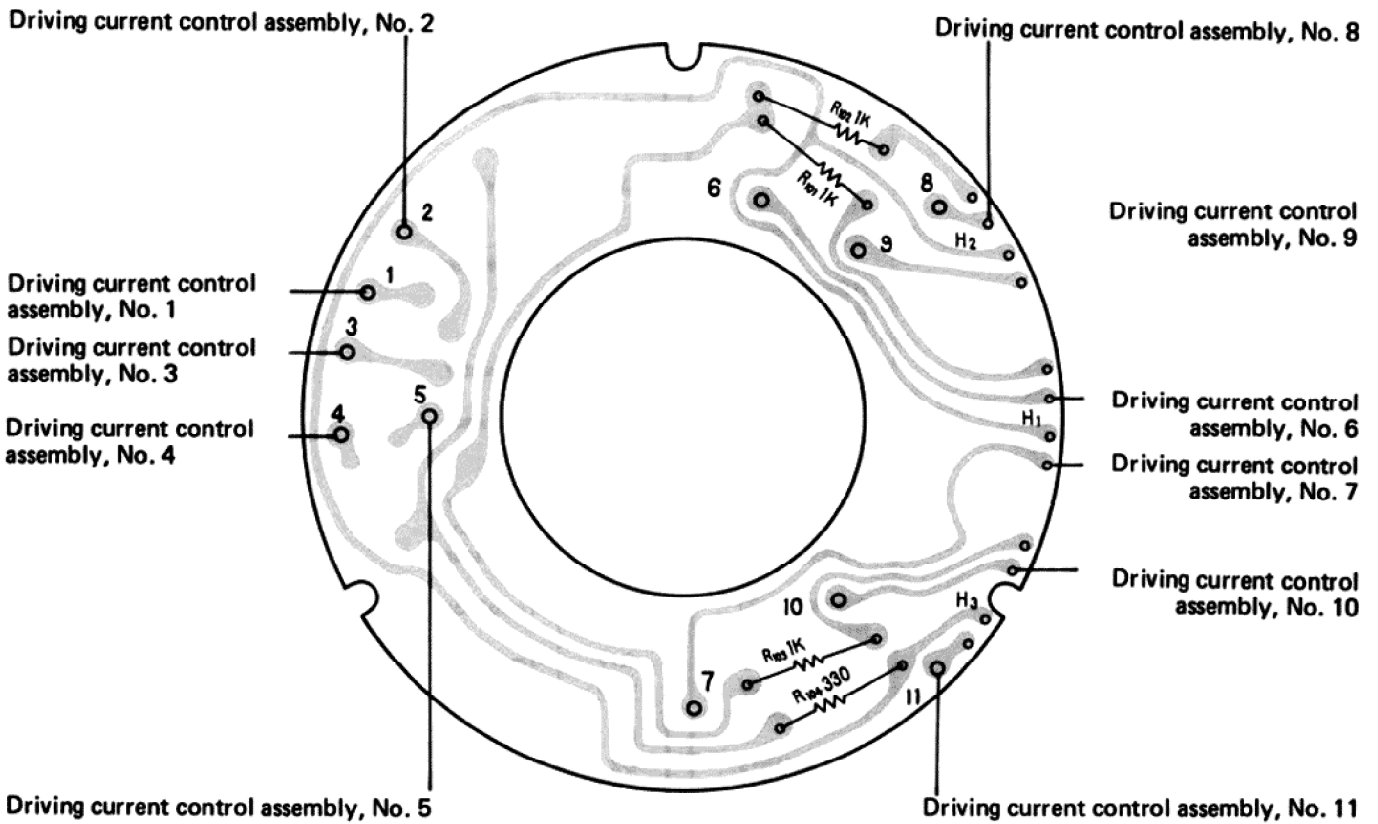
SEMICONDUCTORS

| Symbol | Description | Part No. |
|--------|-------------|--------------------------------------|
| Q1 | Transistor | 2SC711-F (2SC458-C, 2SC945-P1) |
| Q2 | Transistor | 2SC711-F (2SC458-C, 2SC945-P1) |
| Q3 | Transistor | 2SC711-F (2SC923-E) |
| Q4 | Transistor | 2SA715-C (2SA509-Y, 2SB564-L) |
| Q5 | Transistor | 2SC711-F (2SC458-C, 2SC945-P1) |

NOTE:

1. Q₁, Q₂, Q₃, Q₄, Q₅, and Q₁₀ should, on the same circuit board, use the same kind and rank of product.
2. Q₃, Q₇, Q₁₁, and Q₁₆ should, on the same circuit board, use the same kind and rank of product.
3. D₁, D₂, and D₃ should be 'paired' (PYY-006-0).

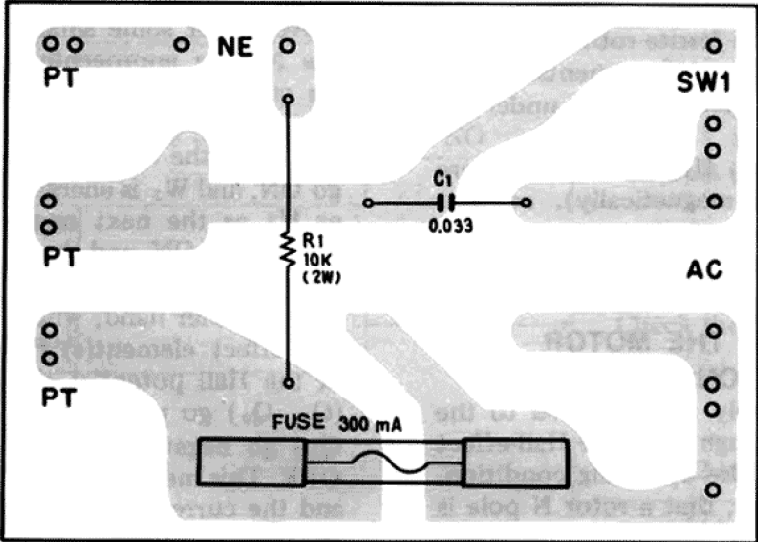
6.4 POSITIONAL DETECTOR ASSEMBLY (PWX-004)



Parts List of Positional Detector Assembly (PWX-004)

| Symbol | Description | Part No. |
|--------|--------------------------|------------|
| H1 | Hall-effect element | PCX-001 |
| H2 | Hall-effect element | PCX-001 |
| H3 | Hall-effect element | PCX-001 |
| R101 | Carbon film resistor 1k | RD%PS 102J |
| R102 | Carbon film resistor 1k | RD%PS 102J |
| R103 | Carbon film resistor 1k | RD%PS 102J |
| R104 | Carbon film resistor 330 | RD%PS 331J |

6.5 POWER SUPPLY ASSEMBLY A (PWR-816)



Parts List of Power Supply Assembly A (PWR-816)

| Symbol | Description | Part No. |
|--------|--------------------|-----------|
| C1 | Myler 0.033 | KCE-009 |
| R1 | Metal oxide 10k 2W | RS2P 103J |
| FU | Fuse 300mA | E21-030 |
| | Fuse clip | K91-006 |

7. PXM-020 OUTLINE OF OPERATION

7.1 STRUCTURE

The PXM-020 is an external-rotor type DC motor in which Hall-effect elements are used to detect the rotor position, with electronic ON-OFF switching of the current to the motor windings.

As shown in Figure 1a, the ferrite rotor is magnetized alternately N and S in 45° segments. Figure 1b shows the three Hall-effect elements under the rotor.

The Hall-effect elements, H₁, H₂, and H₃, are fitted 30° apart (120° magnetically), so that whatever the orientation of the rotor, one of them will experience a Hall potential at a particular time.

7.2 OPERATION OF THE MOTOR (SEE CONNECTION DIAGRAM)

When the electrical supply is connected to the motor, current flows through the three Hall-effect elements, which go into the operating condition. If we assume, at this time, that a rotor N pole is located at the H₁ Hall-effect element position, then the Hall potential developed in H₁ sends the base of Q₁ negative (-) and that of Q₂ positive (+).

Due to this Hall-effect potential Q₂ turns ON, voltage at the Q₂ collector drops, the potential on the base of Q₄ drops, and Q₄ turns ON. With Q₄ ON, the motor drive coil W₁ is energized by the collector current, and the rotor begins to move. After some small movement of the rotor, the N pole approaching the Hall-effect element H₂ causes Q₆ and Q₈ to turn ON, and drive coil W₃ to be energized. With further movement of the rotor the N pole approaches H₃, Q₁₀ and Q₁₂ go ON, and W₂ is energized. The first N pole passes H₃ as the next one approaches H₁, putting Q₂ and Q₄ ON, and thus the rotation of the rotor is continuously sustained.

On the other hand, when a S pole approaches the Hall-effect element(s) H₁ (H₂, H₃), the polarity of the Hall potential changes, the base(s) of Q₁ (Q₅, Q₉) go positive (+), the base(s) of Q₂ (Q₆, Q₁₀) go negative (-), and so Q₂ (Q₆, Q₁₀) turn OFF. This means that Q₄ (Q₈, Q₁₂) also turn OFF and the current ceases to flow in the drive coil(s) W₁ (W₂, W₃).

7.3 SPEED CONTROL

When no current is flowing through a drive coil (that is when a S pole is approaching the Hall effect element), a voltage proportional to the speed of rotation of the rotor is induced in the drive coil (the same effect as with a generator). This voltage is rectified by the diode(s) D₁ (D₂, D₃), and the negative potential derived is applied to the base of Q₁₄. Q₁₄ and Q₁₅ form a differential amplifier circuit, and the standard voltage for 33-1/3 or 45 rpm rotation is applied to the base of Q₁₅. It follows that so long as the rotor is

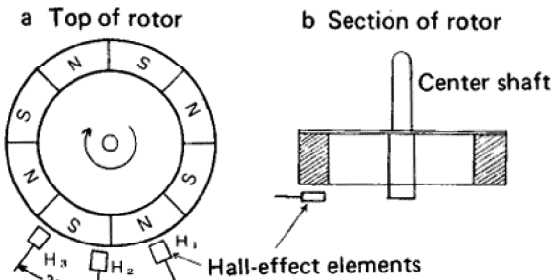


Fig. 1: Relative Locations of Rotor and Hall-Effect Elements

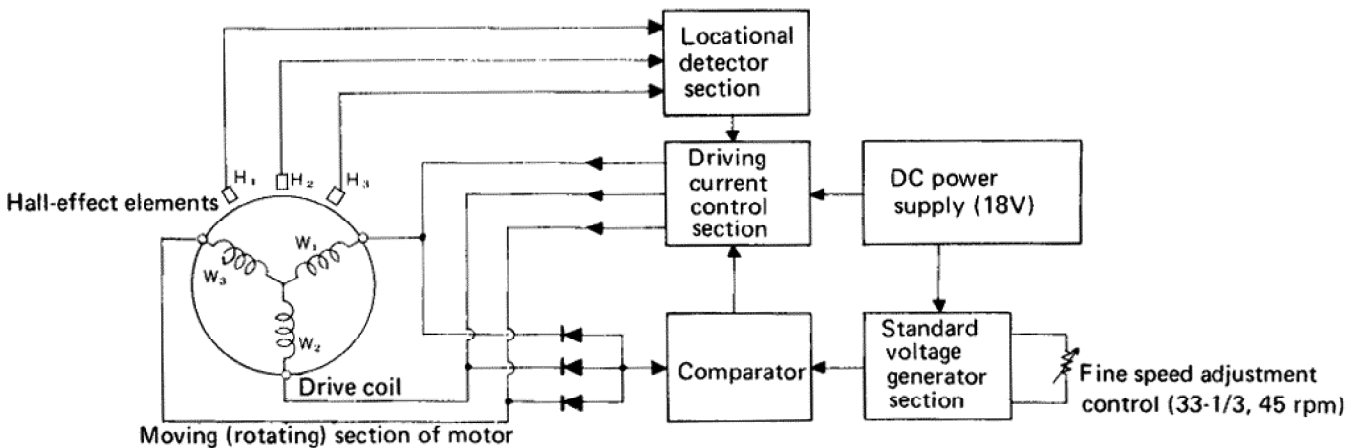
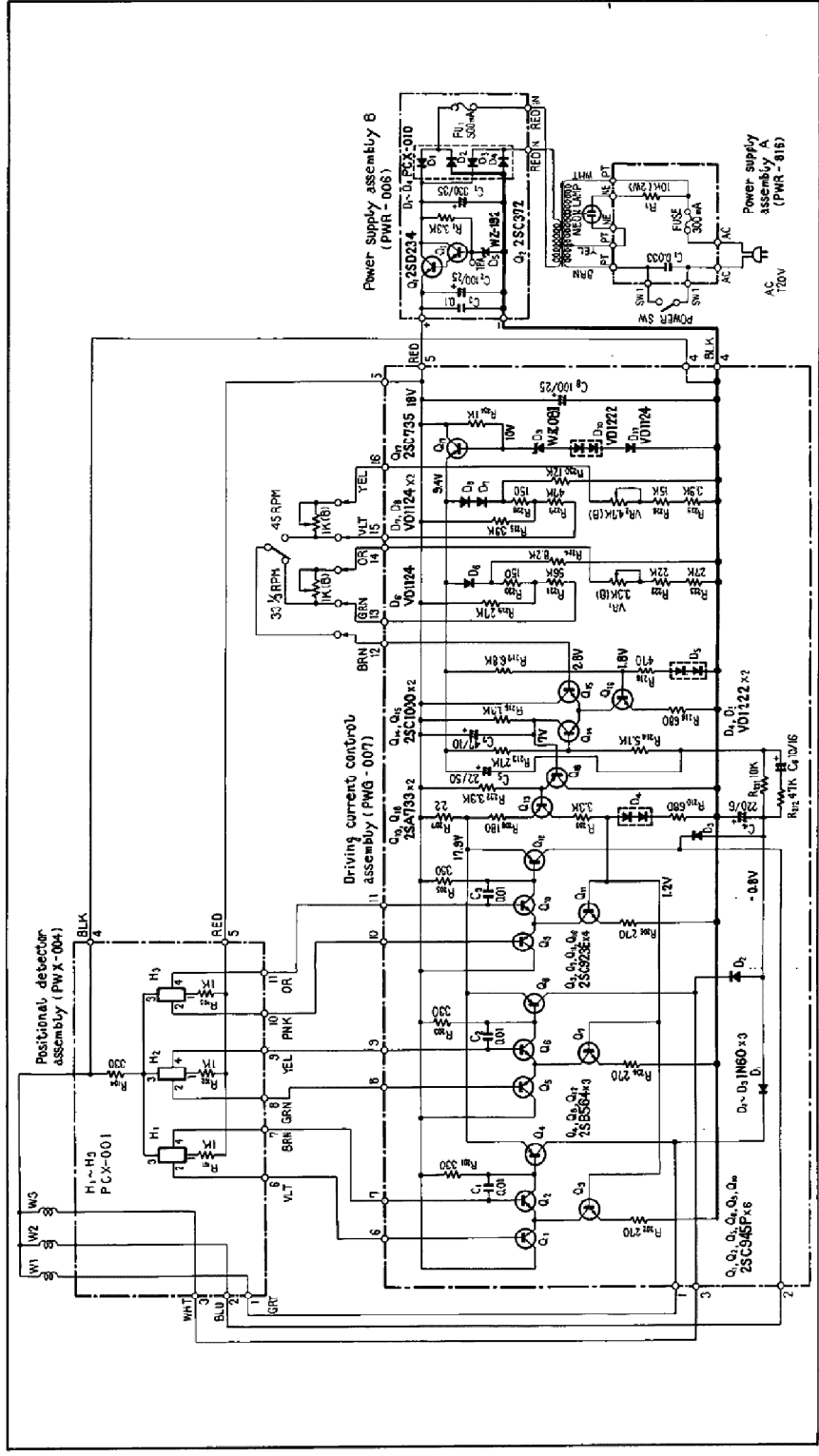


Fig. 2: Block Diagram of the PXM-020

- turning at the correct speed (revs), this circuit is balanced. If for any reason the speed of rotation of the rotor exceeds the proper value, the voltage generated in each drive coil will increase. This causes the potential on the base of Q_{14} to drop, and the potential on the bases of Q_{18} and Q_{13} rises. As the potential on the base of Q_{13} rises, the collector current drops and this reduces the potential on the base(s) of Q_3 (Q_7 , Q_{11}). This results in a reduction in the current flowing through Q_2 (Q_6 , Q_{10}), and a rise in the potential on the base(s) of Q_4 (Q_8 , Q_{12}), so that the collector current(s) of Q_4 (Q_8 , Q_{12}) drop. If the collector current drops, the field strength of the drive coil also drops, the rotor speed drops, and it returns to the correct speed of rotation.

On the other hand, if the rate of rotation of the rotor drops below its proper value, the process is precisely the reverse of the above: the voltage across each drive coil drops, and the base potential of Q_{14} rises. This causes the collector current of Q_{13} to increase, and the current(s) through Q_1 (Q_7 , Q_{11}) and Q_2 (Q_6 , Q_{10}) also rise. As the collector current(s) of Q_2 (Q_6 , Q_{10}) increase, the base potential(s) on Q_4 (Q_8 , Q_{12}) drop, the collector current(s) rise, the magnetic field strength of the drive coil(s) increases, and the rotor speed increases to the correct value.
- D_6 , D_7 and D_8 provide the temperature compensation for rotor magnetism. Magnetic field strength drops at $-0.18\text{mV}/^\circ\text{C}$ with an increase in temperature. For this reason, if D_6 , D_7 and D_8 are not provided, even at the proper rate of rotation, the voltage generated in the drive coils would drop, because the comparator would indicate that the speed has dropped, and so the motor speed would drop. D_6 (33-1/3), D_7 and D_8 (45 rpm) raise the potential at the base of Q_{15} as the temperature rises, preserving the balance of Q_{14} and Q_{15} , and maintaining proper speed.
- D_{10} and D_{11} compensate D_9 and Q_{17} . D_6 (WZ081) is a zener diode. The zener temperature coefficient is $0.05\text{mV}/^\circ\text{C}$. If D_{10} and D_{11} are not provided, as the temperature rises the zener potential will rise, so that the V_{B-E} of Q_{17} drops, raising the emitter potential (the standard voltage) of Q_{17} . If the standard voltage rises, the speed of the motor also rises. This is the reason for the compensation by D_{10} and D_{11} for the rise in D_9 zener potential and the drop in V_{B-E} potential of Q_{17} . The temperature coefficient of D_{11} (VD1124) is $-1.9\text{mV}/^\circ\text{C}$.

CONNECTION DIAGRAM



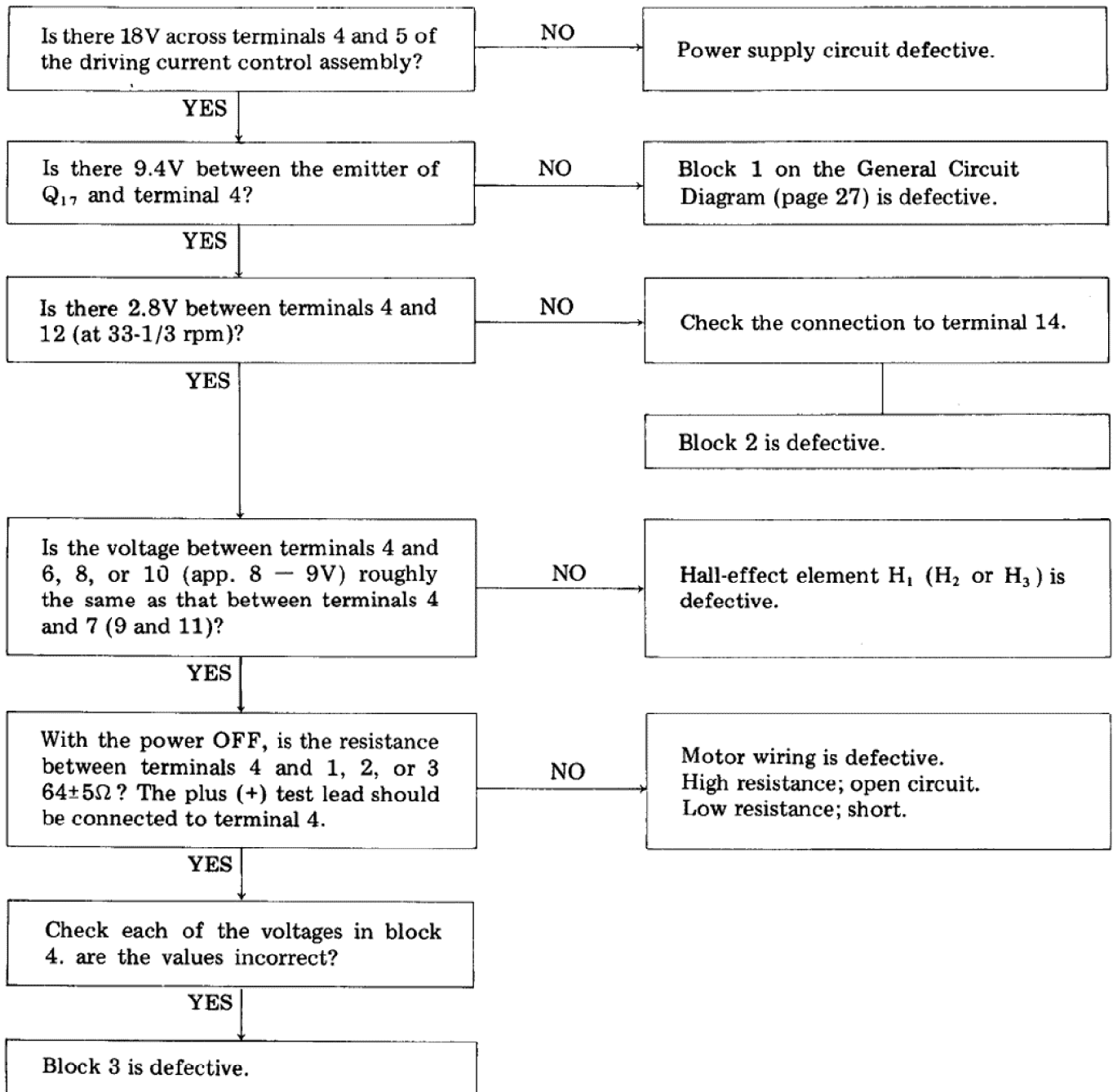
7.4 TEMPERATURE COMPENSATION

The section which corrects the speed of rotation of the motor as the ambient temperature changes comprises varistors (D_4 , D_5 , D_6 , D_7 , D_8 , D_{10} , D_{11}) to achieve temperature compensation.

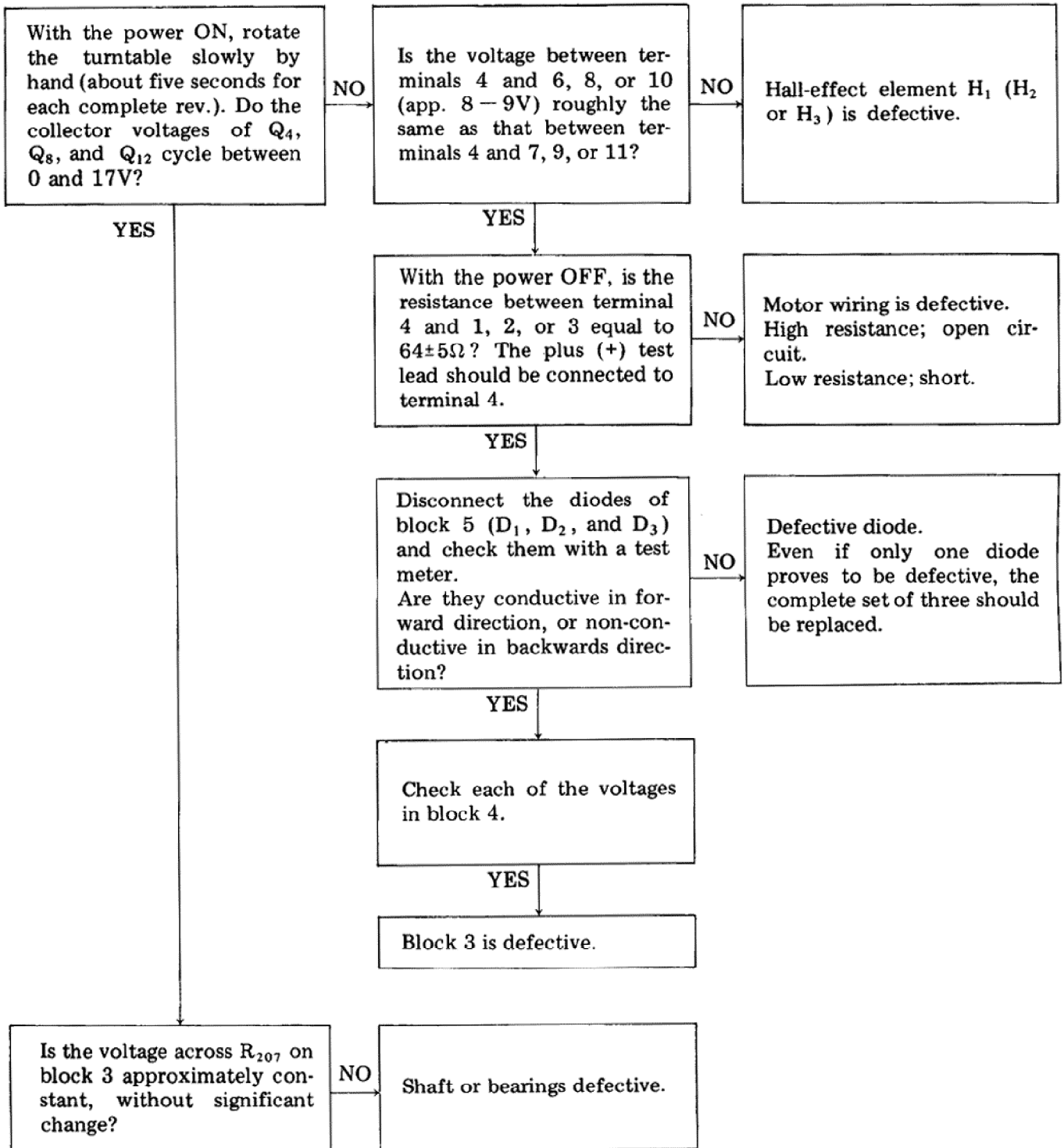
- D_4 compensates Q_3 , Q_7 , and Q_{11} . If D_4 were not provided, an increase in temperature would be accompanied by a drop in the V_{B-E} of Q_3 , Q_7 , and Q_{11} , and an increase in the collector currents. This would result in a drop in the base potentials of Q_4 , Q_8 , and Q_{12} , and an increase in their collector currents with, in turn a higher current through the drive coils and a corresponding increase in the speed of revolution. The temperature coefficient of D_4 (VD1222) is $-3.6\text{mV}/^\circ\text{C}$, which ensures that the bases of Q_3 , Q_7 , and Q_{11} do not drop in potential, so that the motor speed will not increase.
- D_5 compensates Q_{16} . If D_5 were not provided, an increase in temperature would cause an increase in Q_{16} collector current, and a corresponding increase in Q_{14} , Q_{15} , Q_{18} , Q_{13} , with a rise in the base potential of Q_3 , Q_7 , and Q_{11} , and an increase in the speed of the motor.

8. TROUBLE SHOOTING CHART

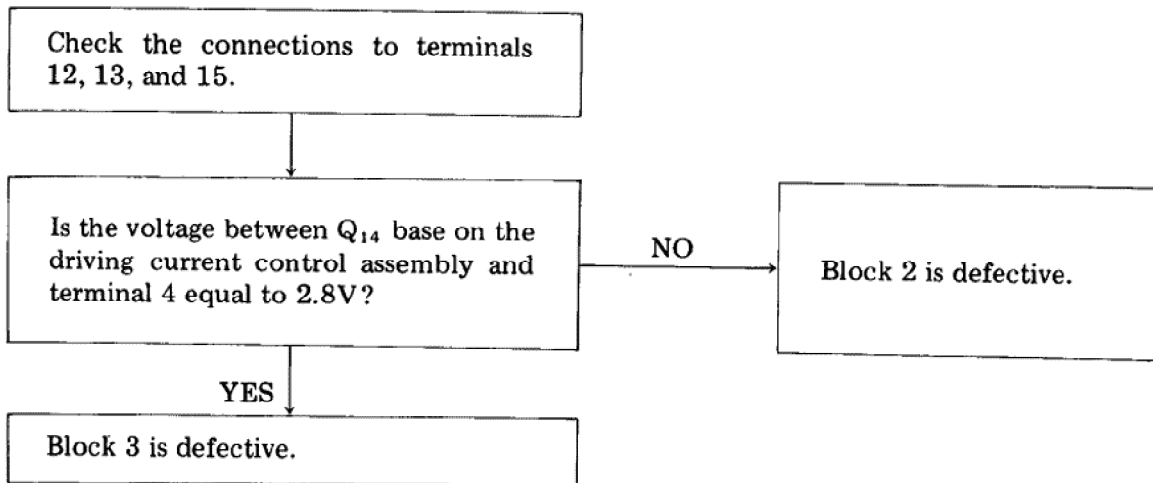
8.1 MOTOR DOES NOT TURN



8.2 WIDE VARIATIONS IN MOTOR SPEED



8.3 MOTOR RACES



9. ADJUSTMENT

9.1 MOTOR SPEED

When it proves impossible to adjust the fine speed controls to give the correct speeds, the motor may be adjusted as follows.

1. Set the fine speed adjustment controls on the stereo turntable to their mechanical centers (approx. in the middle).
2. The separate volume-type controls on the P.C. Board PWG-007 are accessible for both 33 and 45 rpm adjustments. Use a small screwdriver to turn these preset controls to give synchronization as indicated by the stroboscopic speed indicator on the record player.
3. When even turning the controls fails to give the required adjustment, refer to Connection diagram on page 6, and change R_{223} (33-1/3 rpm) and R_{229} (45 rpm) within the range $1.5k\Omega$ to $5.6k\Omega$ before repeating the adjustment.

9.2 ARM ELEVATION

Tonearm elevation is operated by a cable release. If the release stretches due to aging or other reasons, loosen EV guide screw (Fig. 1) and adjust cable release anchor condition. Perform this adjustment with tonearm elevation in DOWN setting. As adjustment standard, EV lever unit (Fig. 2) should tightly contact straight line portion of EV cam. Be sure to confirm operation after adjusting.

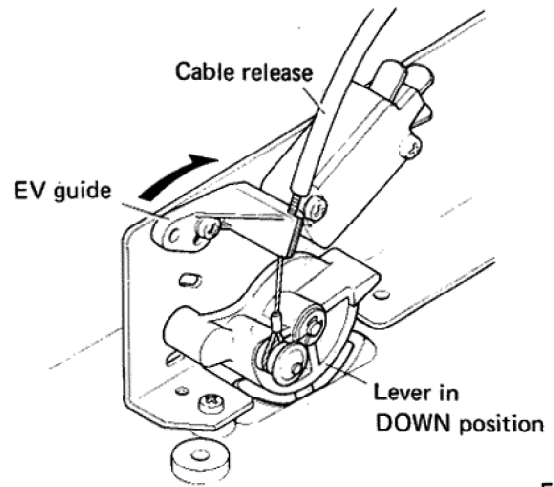


Fig. 1

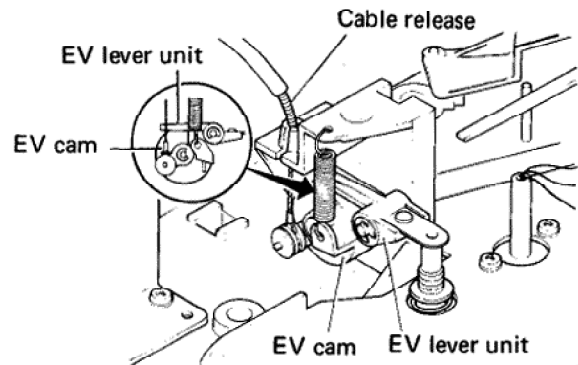


Fig. 2

DIRECT DRIVE
STEREO TURNTABLE
PL-510A
HGT

Additional

Service Manual

This leaflet provides the description of the parts applied only HGT model.
For detailed instructions on adjustments, description, etc., please refer to the Service Manual of PL-510A/KCT, KUT.

 **PIONEER**[®]

10. SPECIFICATIONS (HGT model)

MOTOR AND TURNTABLE

| | |
|--------------------|---|
| Motor: | DC servo motor |
| Turntable Drive: | Direct drive |
| Speed: | Two speeds: 33-1/3 rpm, 45 rpm |
| Wow and flutter: | 0.03% (WRMS) or less |
| S/N: | 68dB (DIN B) or more (with Pioneer cartridge model PC-135) |
| Turntable platter: | 321 mm diam. aluminum alloy |
| Moment of inertia: | 240kg-cm ² (including rubber mat) |

TONARM

| | |
|---|------------------------------------|
| Tonearm type: | Static-balance, S-shaped, pipe arm |
| Effective arm length: | 221 mm |
| Tracking error: | +3° ~ 1° |
| Overhang: | 15.5mm |
| Usable cartridge weight: | 4g (MIN) ~ 10g (MAX) |
| (For cartridges weights over 8.5g, attach the sub weight) | |

SUBFUNCTIONS

- Anti-skating force control
- Plug-in type headshell
- Oil-damped arm elevator
- Hinges (Free-adjustable)
- Lateral balance weight
- Fine speed adjusters (33-1/3 rpm, 45 rpm: using the stroboscope for turntable speed adjustment)

ACCESSORIES

| | |
|----------------------------|---|
| Headshell | 1 |
| Overhang gauge | 1 |
| 45 rpm adaptor | 1 |
| Screwdriver | 1 |
| Sub weight | 1 |
| Cartridge mounting screws | 6 |
| Cartridge mounting nuts | 2 |
| Cartridge mounting washers | 2 |
| Operating instructions | 1 |

MISCELLANEOUS

| | |
|---------------------|--|
| Power requirements: | AC 220V, 240V, 50Hz |
| Power consumption: | 7W |
| Dimensions: | 440(W) x 362(D) x 159(H)mm 17-5/16(W) x 14-1/4(D) x 6-1/4(H)in. |
| Weight: | 8kg, 17 lb 10 oz |

For Use in United Kingdom only.

Please note:

Models employ 3-conductor mains leads. Please read the following instructions carefully before connecting.

WARNING: THIS APPARATUS MUST BE EARTHED.

CAUTION 240V: MAINS SUPPLY VOLTAGE IS FACTORY ADJUSTED AT 240 VOLTS.

IMPORTANT

The wires in this mains lead are coloured in accordance with following code:

| | |
|-------------------|---------|
| Green-and-yellow: | Earth |
| Blue: | Neutral |
| Brown: | Live |

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol \perp or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured blue or black.

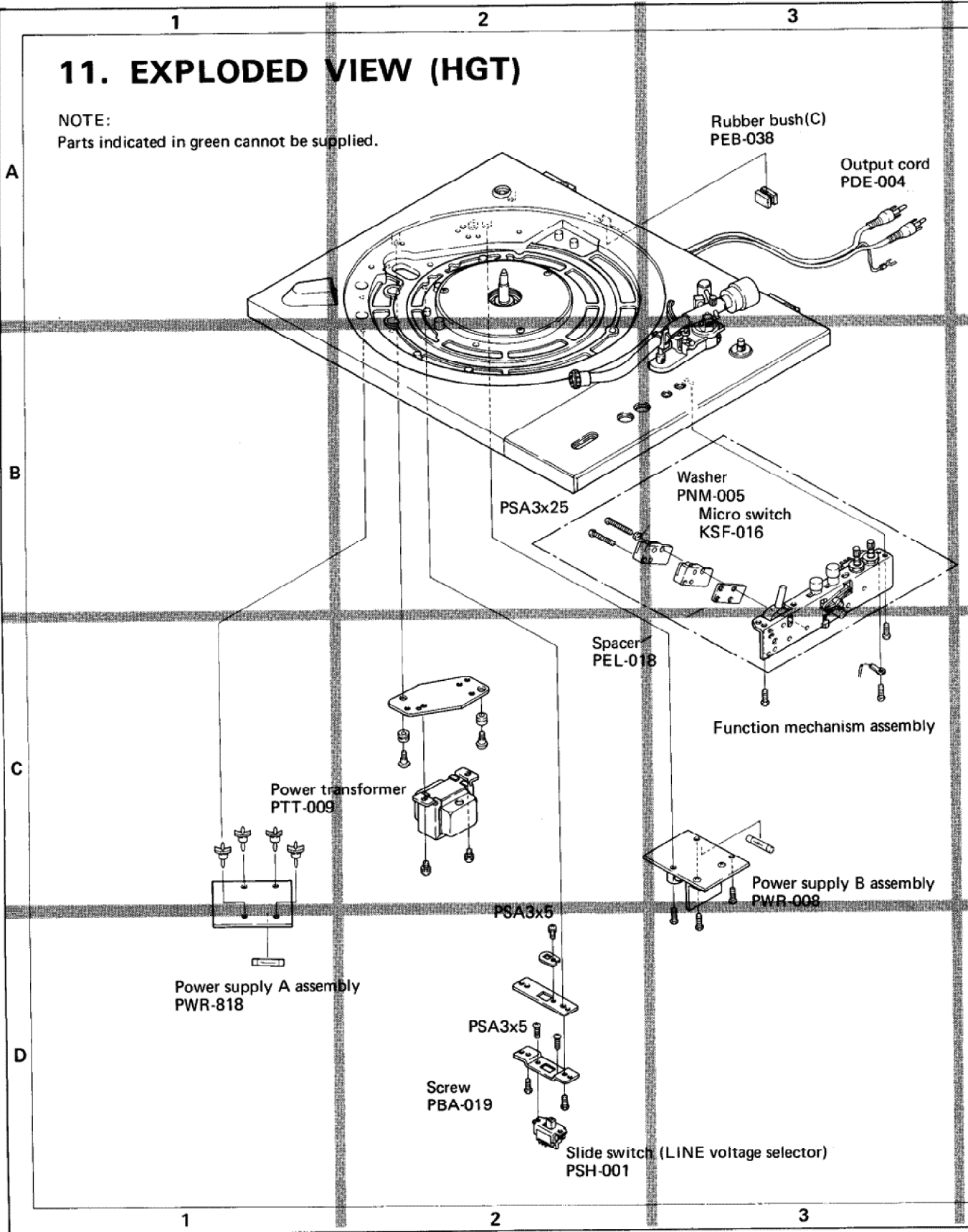
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured brown or red.

NOTE:

Specifications and design subject to possible modification without notice, due to improvements.

11. EXPLODED VIEW (HGT)

NOTE:
Parts indicated in green cannot be supplied.

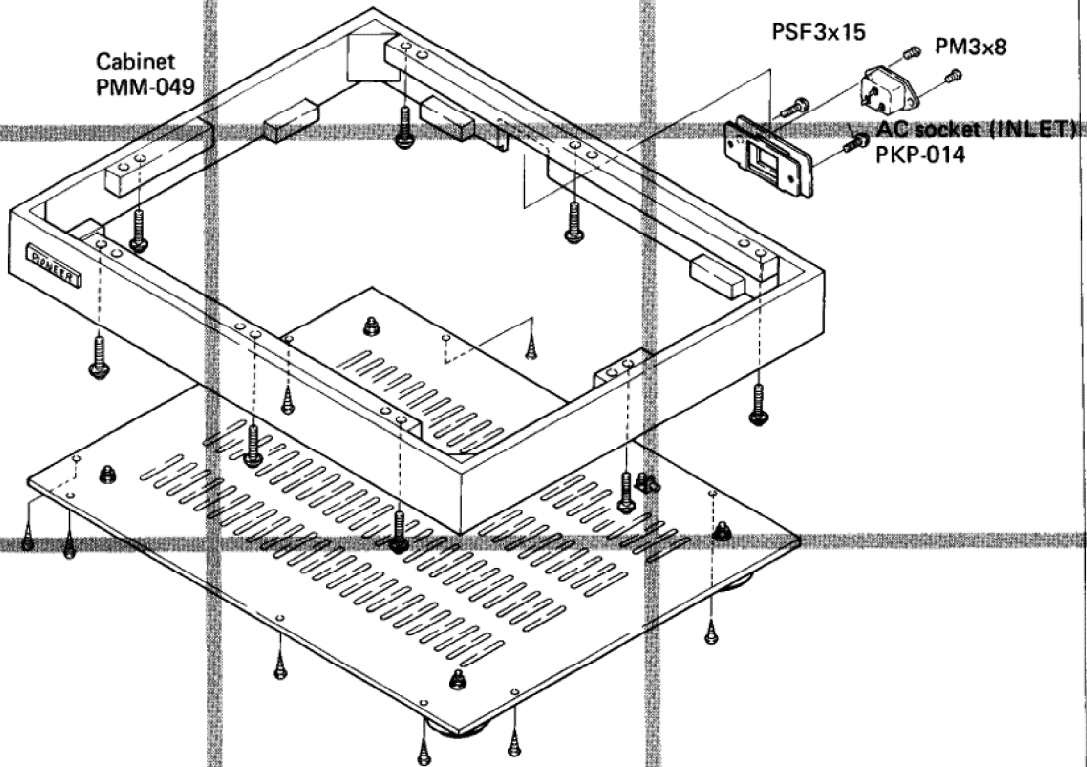


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6

The parts indicated the designation and parts number are newly-employed as HGT model.
The parts without description are the same as the parts in the KCT model.



The following parts are changed the parts number as shown in the table.

| Part Name | Part No. (HGT model) |
|------------------------|-------------------------|
| Anti skating assembly | PXA-641 |
| Rubber mat assembly | PEA-013 |
| Headshell assembly | PXA-630 |
| Packing case | PHG-128 |
| Power supply assemblyB | PWR-008 |
| Fuse 0.4A | PEK-005 |
| Fuse clip | KKR-001 |
| Operating instructions | PRB-039 (English) |
| Operating instructions | PRD-016 (French/German) |

4

5

6

A

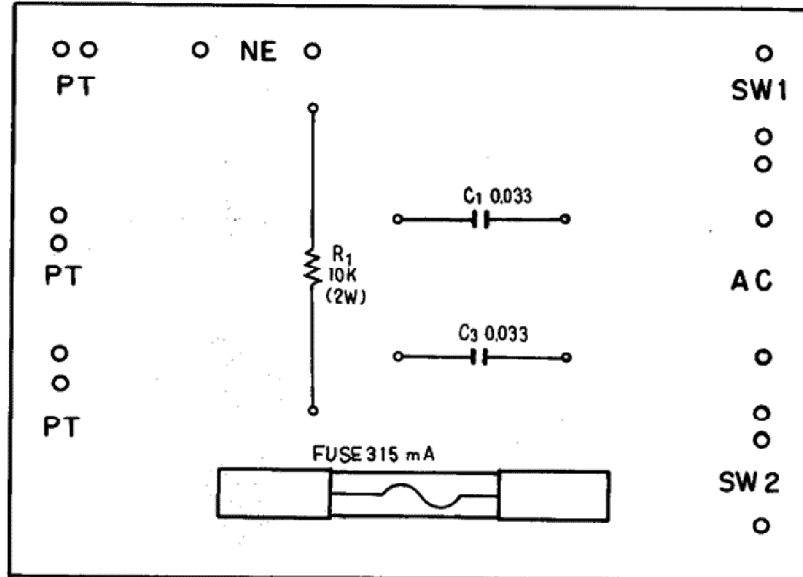
B

C

D

13. P. C BOARD PATTERN AND PARTS LIST

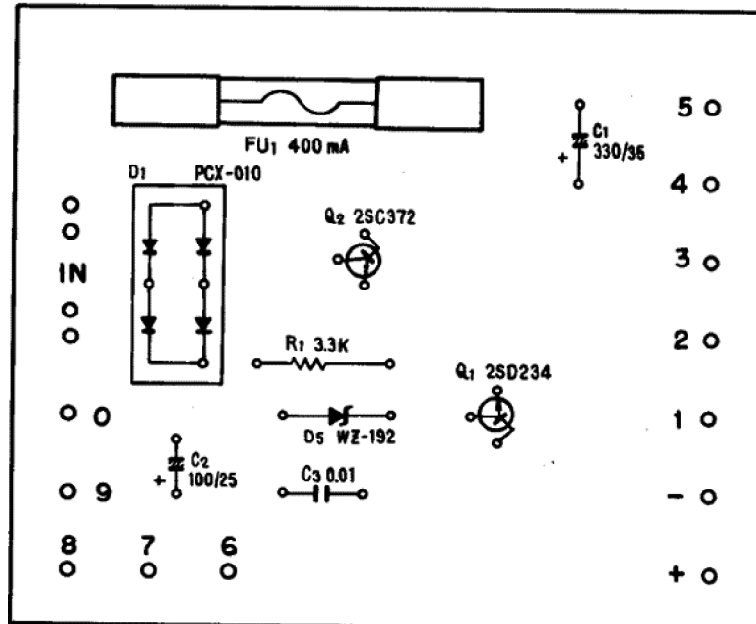
13.1 POWER SUPPLY ASSEMBLY A (PWR-818)



Parts List of Power Supply Assembly A (PWR-818)

| Symbol | Description | | | Part No. |
|--------|-------------|-------|------|-----------|
| C1 | Myler | 0.033 | 250V | PCL-013 |
| C2 | Myler | 0.033 | 250V | PCL-013 |
| R1 | Metal oxide | 10k | 2W | RS2P 103J |
| FU | Fuse | 315mA | | KEK-008 |
| | Fuse clip | | | KKR-001 |

13.2 POWER SUPPLY ASSEMBLY B (PWR-008)



Parts List of Power Supply Assembly B (PWR-008)

| Symbol | Description | Part No. |
|--------|----------------------|---------------|
| C1 | Electrolytic 330 35V | CEA 331P 35 |
| C2 | Electrolytic 100 25V | CEA 101P 25 |
| C3 | Ceramic 0.01 50V | CKDYF 103Z 50 |
| R1 | Carbon film 3.3k | RD¼PS 332J |
| Q1 | Transistor | 2SD234 |
| Q2 | Transistor | 2SC372 |
| D1 | Diode | PCX-010 |
| D2 | Zener diode | WZ-192 |
| FU | Fuse 400mA | PEK-005 |
| | Fuse clip | KKR-001 |

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